

# Model 7280 Series

## Precision Potentiometer



### Features:

- Lead-free
- RoHS 2 compliant
- 7/8" diameter
- 10 turn wirewound

### Applications:

- Pedal position
- Joystick controls
- Valve control
- Wind vane
- Panel control
- Test and measurement
- Medical equipment
- Angular position

## Model Styles Available

|   |                          |
|---|--------------------------|
| 7281                                    | 1/8" shaft, 1/4" bushing |
| 7283                                    | 1/8" shaft, servo        |
| 7284                                    | 6 mm shaft, 3/8" bushing |
| 7286                                    | 1/4" shaft, 3/8" bushing |
| 7288 (for heavy side load applications) | 1/4" shaft, 3/8" bushing |

## Electrical

|   |  |
|---|--|
| Resistance range                        | 100 to 100K ohms                                       |
| Standard resistance tolerance           | ±5%  |
| Minimum practical resistance tolerance  | ±1%  |
| Independent linearity                   | ±0.25%   |
| Minimum practical independent linearity | ±0.15% (<300 ohms), ±0.075% (≥300 ohms)                |
| Power rating                            | 2.0 Watts at 70°C, derating to 0 at 125°C              |
| Dielectric strength                     | 1,000 V rms  |
| Insulation resistance                   | 1,000 Megohms minimum                                  |
| Noise                                   | 100 ohms maximum                                       |
| Actual electrical travel                | 3600° +10° -0° (>100 ohms), 3600° +10° -5° (≤100 ohms) |
| End voltage                             | Maximum 0.25% of input voltage                         |
| Tap tolerance                           | ±3°  |

General Note  
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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### Mechanical

|   |                               |             |
|---|-------------------------------|-------------|
| Total mechanical travel                                 | 3600° +15° -0°                |             |
| Number of gangs   | 2 maximum                     |             |
| Weight (single gang)                                    | 0.75 oz. nominal              |             |
| Backlash  | 1° maximum                    |             |
|   | <b>7281, 7284, 7286, 7288</b> | <b>7283</b> |
| Static stop strength                                    | Maximum 48 oz.-in.            | 36 oz.-in.  |
| Panel nut tightening torque                             | Maximum 25 lb.-in.            | n/a         |
| Shaft end play  | Maximum 0.010"                | 0.005"      |
| Shaft runout  | Maximum T.I.R. 0.003"         | 0.002"      |
| Pilot diameter runout                                   | Maximum T.I.R. 0.004"         | 0.002"      |
| Lateral runout  | Maximum T.I.R. 0.005"         | 0.004"      |
| Shaft radial play                                       | Maximum 0.003"                | 0.002"      |
| Start/run torque (per gang, ES option adds 0.5 oz.-in.) | Maximum 0.8 oz.-in.           | 0.6 oz.-in. |

### Environmental

|  |   |  |
|--|---|--|
| Operating temperature range                    | -40°C to +125°C dynamic, -55°C to +125°C static                     |  |
| Temperature cycling                            | 5 cycles, -55°C to +125°C, maximum 5% ΔR                            |  |
| Shock  | 6 ms saw-tooth, 100 G's, 0.1 ms maximum discontinuity               |  |
| Vibration                                      | 15 G's, 10 to 2,000 Hz, maximum 5% ΔR, 0.1 ms maximum discontinuity |  |
| Moisture resistance                            | Five 24 hour cycles, maximum 3% ΔR                                  |  |
| High temperature exposure                      | 1,000 hours at 125°C, maximum 5% ΔR                                 |  |
| Rotational load life (1 lb side load for 7288) | 1M shaft revolutions + 900 hours at 2.0 Watts & 70°C, maximum 5% ΔR |  |
| Ingress protection rating (IP Code)            | IP50, IP66 available as option (feature code ES)                    |  |

### Ordering Information



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### Feature Codes

|   |         |
|---|---------|
| 7281, 7283 plain shaft; 7284, 7286, 7288 slotted shaft                      | No code |
| Center tap  | CT      |
| Linearity tape  | LT      |
| Flatted shaft   | FS      |
| Slotted shaft (standard on single cup 7284, 7286 & 7288 without RS feature) | SS      |
| Rear shaft extension (7281, 7286, 7288 single cup only)                     | RS      |
| Shaft lock (7286 & 7288 only)   | SL      |
| High torque 2-6 oz.-in. (7286 & 7288 only)                                  | HT      |
| Additional gang   | 2G      |
| Gold plated solder lug terminals (see optional terminal configuration)      | FT      |
| Seal (IP66) 7284, 7286, or 7288 only  | ES      |

When multiple feature codes are used the P/N shall be in the same sequence as listed in this table (top to bottom).

### Standard Resistance Values

| Total Resistance (Ohms) | Theoretical Resolution (% nominal) | Tempco of Wire (ppm/°C) |
|-------------------------|------------------------------------|-------------------------|
| 100                     | 0.059                              | ±20                     |
| 200                     | 0.037                              | ±20                     |
| 500                     | 0.030                              | ±20                     |
| 1K                      | 0.024                              | ±20                     |
| 2K                      | 0.020                              | ±20                     |
| 5K                      | 0.018                              | ±20                     |
| 10K                     | 0.017                              | ±20                     |
| 20K                     | 0.016                              | ±20                     |
| 50K                     | 0.010                              | ±20                     |
| 100K                    | 0.008                              | ±20                     |

### Circuit Diagram



### Feature Codes

7281: RBJ, 2601, 2641

7286, 7288: RB, 2126, 2606, 2606S, 2607, 2607S, 2626, 2627, 2646, 2646S, 2647, 2647S

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### Outline Drawing



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